CLAIMS

What is claimed is:

1. A projection system comprising:

a projector to project an image composed of visible light in one or more ranges of wavelengths; and

a projection screen having:

a plurality of sub-pixels that:

at least one of reflect and transmit the one or more ranges of wavelengths to display the image;

absorb visible wavelengths of light in at least one other range that is not included in the one or more ranges; and

one or more spaces defined between adjacent said sub-pixels that at least one of reflect and transmit the one or more ranges and the at least one other range.

2. A projection system as described in claim 1, wherein each said sub-pixel is smaller than a pixel projected on the projection screen by the projector.

3. A projection system as described in claim 1, wherein the one or more ranges include:

a range of red wavelengths of visible light;

a range of green wavelengths of visible light; and

a range of blue wavelengths of visible light.

4. A projection system as described in claim 1, wherein the projector does not project wavelengths of light in the at least one other range.

5. A projection system as described in claim 1, wherein the image is provided by an additive color technique so as to have a full-color appearance to the human eye.

6. A projection system as described in claim 1, wherein the plurality of sub-pixels absorb the visible wavelengths of light in the at least one other range by utilizing a material selected from the group consisting of:

an optical filter;

a pigment;

an optical coating;

an optical dye; and

any combination thereof.

7. A projection system as described in claim 1, wherein the projection screen includes a substrate that reflects or transmits visible light in the one or more ranges of wavelengths.

8. A projection system as described in claim 1, wherein the projector includes a component selected from the group consisting of:

a digital micromirror device (DMD);

a liquid crystal display (LCD);

a grating light valve (GLV); and

a liquid crystal on silicon (LCOS) device.

9. A projection system as described in claim 1, wherein each of the one or more ranges has a spectral width selected from the group consisting of:

approximately 100 nanometers or less;

approximately 35 nanometers or less; and

approximately 5 nanometers or less.

10. A projection screen comprising a substrate having thereon:

a plurality of sub-pixels that are formed from one or more absorption materials that:

at least one of reflect and transmit visible light in one or more ranges of wavelengths;

absorb visible light in at least one other range of wavelengths that is

not included in the one or more ranges; and

define one or more spaces between adjacent said sub-pixels that at least one of reflect and transmit visible light in the one or more ranges and the at least one other range;

wherein the visible light that is at least one of reflected and transmitted provides an image projected from a projector and having wavelengths of light in the one or more ranges.

11. A projection screen as described in claim 10, wherein each said sub-pixel is smaller than a pixel projected by the projector.

12. A projection screen as described in claim 10, wherein the substrate reflects or transmits visible light in the one or more ranges of wavelengths.

13. A projection screen as described in claim 10, wherein the one or more ranges include:

a range of red wavelengths of visible light;

a range of green wavelengths of visible light; and

a range of blue wavelengths of visible light.

14. A projection screen as described in claim 10, wherein the image has a full-color appearance to the human eye.

15. A projection screen as described in claim 10, wherein the one or more absorption materials include a material selected from the group consisting of:

an optical filter;

a pigment;

an optical coating;

an optical dye; and

any combination thereof.

16. A projection screen as described in claim 10, wherein each of the one or more ranges has a spectral width selected from the group consisting of:

approximately 100 nanometers or less;

approximately 35 nanometers or less; and

approximately 5 nanometers or less.

17. A method comprising:

projecting by a projector an image composed of visible light in one or more ranges of wavelengths on a projection screen;

displaying the projected image by the projection screen by at least one of reflecting and transmitting the visible light;

outputting by an ambient light source wavelengths of visible light in at least one other range not included in the one or more ranges; and

absorbing by the projection screen wavelengths of light output by the ambient light source in the at least one other range by a plurality of sub-pixels that are patterned over a substrate of the projection screen.

18. A method as described in claim 17, wherein each said sub-pixel is smaller than a pixel projected on the projection screen by the projector.

19. A method as described in claim 17, wherein the outputting further comprises outputting by the ambient light source visible wavelengths of light in the one or more ranges.

20. A method as described in claim 17, wherein the one or more ranges include:

a range of red wavelengths of visible light;

a range of green wavelengths of visible light; and

a range of blue wavelengths of visible light.

21. A method as described in claim 17, wherein each of the one or more ranges has a spectral width selected from the group consisting of:

approximately 100 nanometers or less;

approximately 35 nanometers or less; and

approximately 5 nanometers or less.

22. A method comprising:

forming over a substrate one or more materials that at least one of reflect and transmit visible light in one or more ranges of wavelengths; and

forming over the substrate one or more absorption materials that absorb visible light in at least one other range of wavelengths not included in the one or more ranges such that the one or more absorption materials are patterned over the substrate to form a plurality of sub-pixels,

wherein the visible light that is at least one of reflected and transmitted provides an image projected from a projector and having wavelengths of light in the one or more ranges.

23. A method as described in claim 22, wherein the forming over the substrate of the one or more absorption materials further comprises:

forming the one or more absorption materials over an initial substrate;

releasing the one or more absorption materials from the initial substrate; and

applying the released one or more absorption materials to the substrate.

24. A method as described in claim 22, wherein the plurality of absorption materials are formed in layers that include at least one of aluminum, silicon dioxide and TaAl.

25. A method as described in claim 22, wherein the plurality of sub-pixels define one or more spaces between adjacent said sub-pixels that is smaller than a pixel projected on the projection screen by the projector.

26. A method as described in claim 22, wherein each said sub-pixel is smaller than a pixel projected on the projection screen by the projector.

27. A method as described in claim 22, wherein the plurality of sub-pixels are formed by expelling the absorption material over the substrate.

28. A method as described in claim 22, wherein the one or more absorption materials include one said absorption material selected from the group consisting of:

an optical filter;

a pigment;

an optical coating;

an optical dye; and

any combination thereof.

29. A projection screen as described in claim 22, wherein each of the one or more ranges has a spectral width selected from the group consisting of:

approximately 100 nanometers or less;

approximately 35 nanometers or less; and

approximately 5 nanometers or less.

30. A projection screen comprising a structure made by the method of claim 22.

31. A system comprising:

means for projecting an image composed of visible light in one or more ranges of wavelengths; and

means for displaying the projected image having:

a plurality of sub-pixels that:

at least one of reflect and transmit the one or more ranges of wavelengths to display the image; and

absorb visible wavelengths of light in at least one other range that is not included in the one or more ranges; and

one or more spaces that are defined between adjacent said sub-

pixels that at least one of reflect and transmit the one or more ranges and the at least one other range

32. A system as described in claim 31, wherein the projecting means includes a projector.

33. A system as described in claim 31, wherein the displaying means includes a projection screen.